

# SMT Power Inductors

Power Beads - 2 - Phase Coupled Inductors for Notebook Vcore



- Halogen Free
- For use only with Volterra VT13xx chipset
- Height:** 4.0mm Max
- Footprint:** 11.8mm x 11.4mm Max (PA2143NL)  
9.9mm x 10.0mm Max (PA2156NL)

## Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C<sup>7</sup>

| Part Number                            | Leakage <sup>1</sup><br>Inductance<br>(nH ±20%) | Irated/Phase <sup>3</sup><br>(Adc) | Open Circuit <sup>2</sup><br>Inductance (Lm+Lk) |       | Coupling <sup>2</sup><br>Ratio<br>(TYP) | DCR/Phase<br>(mW Nom) |       | Saturation Current <sup>4</sup><br>(Adc @25°C) |       | Heating Current <sup>5</sup><br>per Phase<br>(Adc) |
|----------------------------------------|-------------------------------------------------|------------------------------------|-------------------------------------------------|-------|-----------------------------------------|-----------------------|-------|------------------------------------------------|-------|----------------------------------------------------|
|                                        |                                                 |                                    | (1-4)                                           | (2-3) |                                         | (1-4)                 | (2-3) | 2*Lk                                           | Lm+Lk |                                                    |
| PA2143NL - 11.8mm x 11.4mm x 4.0mm MAX |                                                 |                                    |                                                 |       |                                         |                       |       |                                                |       |                                                    |
| PA2143NL                               | 50                                              | 31                                 | 200                                             | 200   | 3                                       | .26±10%               |       | >40                                            | 18    | 35                                                 |
| PA2156NL - 9.9mm x 10.0mm x 4.0mm MAX  |                                                 |                                    |                                                 |       |                                         |                       |       |                                                |       |                                                    |
| PA2156NL                               | 50                                              | 31                                 | 240                                             | 240   | 4                                       | .36±13%               |       | >40                                            | 9     | 28                                                 |

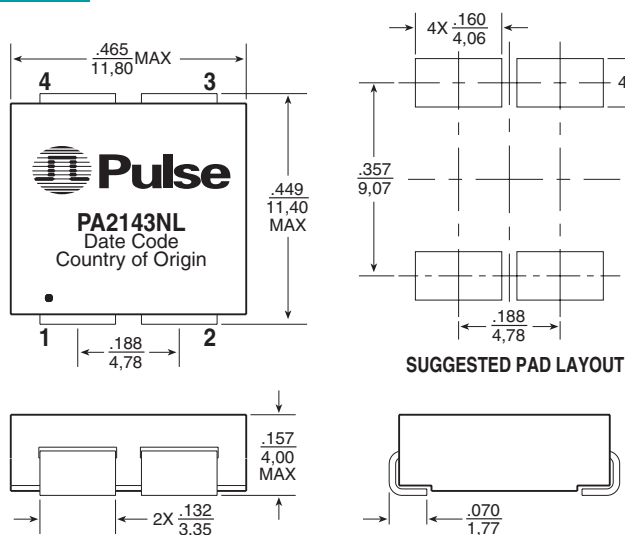
### NOTES:

- The leakage inductance (L<sub>k</sub>) is equivalent to the phase inductance in a non-coupled design. The leakage inductance represents the actual inductance that would be required in an non-coupled design to achieve the same transient performance. Only the value of 2\*L<sub>k</sub> (ie: series leakage inductance) can be measured directly. The value of 2\*L<sub>k</sub> is measured between pins (1-2) with (4,3) shorted.
- The open circuit inductance (L<sub>m</sub>+L<sub>k</sub>) can be measured directly on either pins (1-4) or pins (2-3). The value of L<sub>m</sub>/L<sub>k</sub> defines the coupling ratio.
- The I<sub>rated</sub>/phase represents the DC current per phase that the coupled inductor can tolerate (with a 5Adc/phase imbalance) before saturating.
- The heating current (I<sub>dc</sub>) is the DC current required to raise the component temperature by approximately 40C. The components performance varies depending on the system conditions.
- In high volt\*time applications, additional heating in the component can occur due to core losses in the inductor which may necessitate derating the current in order to limit the temperature rise of the component. To determine the approximate total losses (or temperature rise) for a given application, the coreloss and temperature rise curves can be used.
- The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.
- Optional Tape & Reel packaging can be ordered by adding a "T" suffix to the part number (i.e. PA2143NL becomes PA2143NLT). Pulse complies with industry standard tape and reel specification EIA481. The tape and reel for this product has a width (W=24mm), pitch (Po=16mm) and depth (Ko=4.1mm)

## Mechanicals

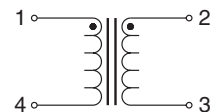
## Schematics

### PA2143NL

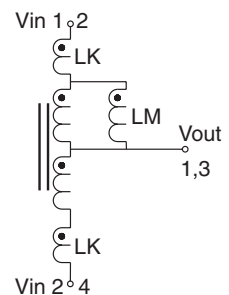


Weight ..... 2.1 grams  
 Tape & Reel ..... 1000/reel  
 Dimensions: Inches \_\_\_\_\_  
 mm \_\_\_\_\_  
 Unless otherwise specified, all tolerances  
 are ± .010  
 0,25

### COMPONENT



### APPLICATION



USA 215 781 6400

Germany 49 7032 7806 0

Singapore 65 6287 8998

Shanghai 86 21 62787060

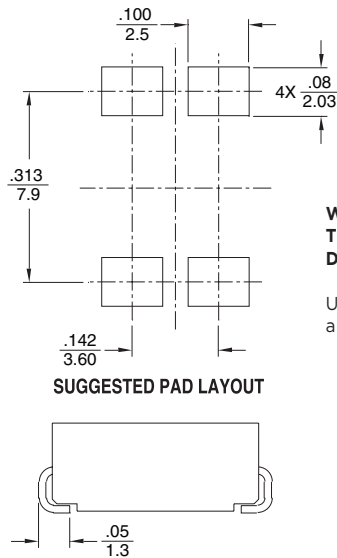
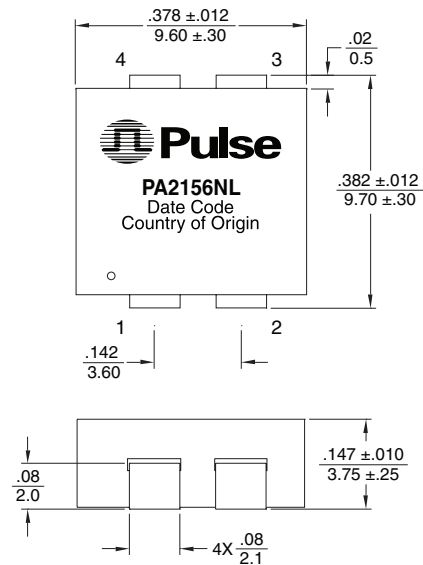
China 86 755 33966678

Taiwan 886 3 4356768

## Mechanicals

## Schematics

## PA2156NL



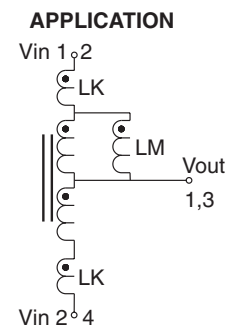
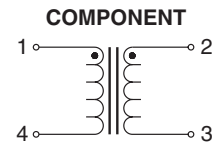
**Weight** . . . . . 2.1 grams

**Tape & Reel . . . . . 1000/reel**

**Dimensions:**

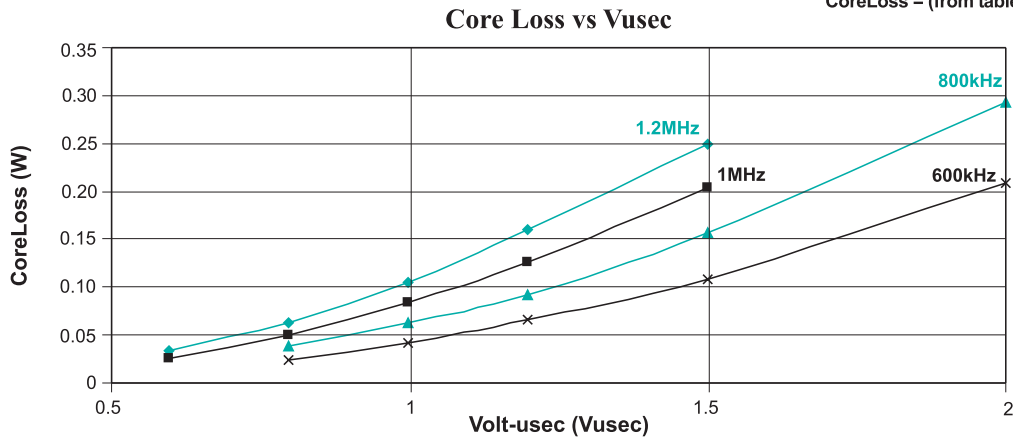
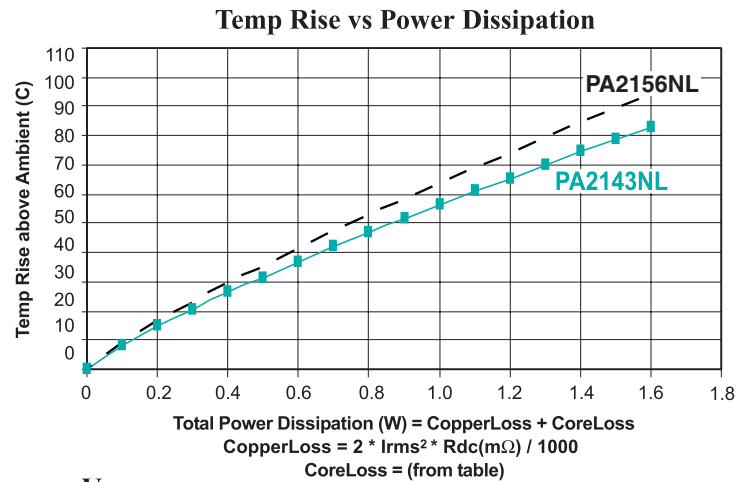
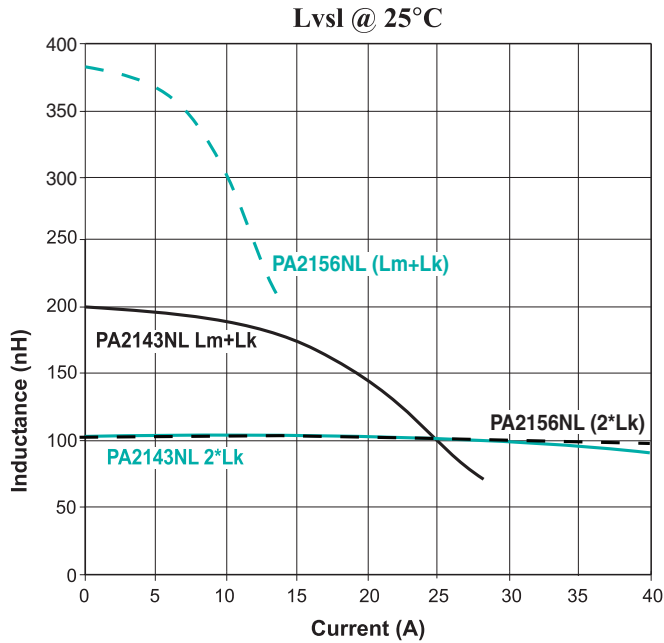
|        |
|--------|
| Inches |
| mm     |

Unless otherwise specified, all tolerances  
are  $\pm .010$   
0,25



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